



Thursday, April 18, 2019

Attn: Mr. Keith Gammell
Barnhardt Mfg. Co.
247 Main Rd
P.O. Box 3
Colrain, MA 01340

Project ID: 2ND QUARTERLY SLUDGE & SULFIDE
SDG ID: GCC94588
Sample ID#s: CC94588 - CC94589

This laboratory is in compliance with the NELAC requirements of procedures used except where indicated.

This report contains results for the parameters tested, under the sampling conditions described on the Chain Of Custody, as received by the laboratory. This report is incomplete unless all pages indicated in the pagination at the bottom of the page are included.

All soils, solids and sludges are reported on a dry weight basis unless otherwise noted in the sample comments.

A scanned version of the COC form accompanies the analytical report and is an exact duplicate of the original.

If you are the client above and have any questions concerning this testing, please do not hesitate to contact Phoenix Client Services at ext.200. The contents of this report cannot be discussed with anyone other than the client listed above without their written consent.

Sincerely yours,

A handwritten signature in black ink, appearing to read "Phyllis Shiller".

Phyllis Shiller

Laboratory Director

NELAC - #NY11301
CT Lab Registration #PH-0618
MA Lab Registration #M-CT007
ME Lab Registration #CT-007
NH Lab Registration #213693-A,B

NJ Lab Registration #CT-003
NY Lab Registration #11301
PA Lab Registration #68-03530
RI Lab Registration #63
UT Lab Registration #CT00007
VT Lab Registration #VT11301



Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Sample Id Cross Reference

April 18, 2019

SDG I.D.: GCC94588

Project ID: 2ND QUARTERLY SLUDGE & SULFIDE

Client Id	Lab Id	Matrix
BELT PRESS SLUDGE GRAB	CC94588	SLUDGE
EFFLUENT	CC94589	WASTE WATER



Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

April 18, 2019

FOR: Attn: Mr. Keith Gammell
Barnhardt Mfg. Co.
247 Main Rd
P.O. Box 3
Colrain, MA 01340

Sample Information

Matrix: SLUDGE
Location Code: BARNHARD
Rush Request: Standard
P.O.#: G10513

Custody Information

Collected by:
Received by: CP
Analyzed by: see "By" below

Date

04/12/19
04/12/19

Time

6:15
17:02

Laboratory Data

SDG ID: GCC94588
Phoenix ID: CC94588

Project ID: 2ND QUARTERLY SLUDGE & SULFIDE
Client ID: BELT PRESS SLUDGE GRAB

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Boron	94.1	3.2	mg/Kg	1	04/14/19	EK	SW6010D
Cadmium	< 0.81	0.81	mg/Kg	1	04/14/19	EK	SW6010D
Chromium	6.32	0.81	mg/Kg	1	04/14/19	EK	SW6010D
Copper	12.6	0.81	mg/Kg	1	04/14/19	EK	SW6010D
Mercury	< 0.41	0.41	mg/kg	1	04/16/19	RS	SW7471B
Potassium	4690	1.6	mg/Kg	1	04/14/19	EK	SW6010D
Molybdenum	2.76	0.81	mg/Kg	1	04/14/19	EK	SW6010D
Nickel	2.79	0.81	mg/Kg	1	04/14/19	EK	SW6010D
Lead	< 0.81	0.81	mg/Kg	1	04/14/19	EK	SW6010D
Zinc	23.2	0.81	mg/Kg	1	04/14/19	EK	SW6010D
Percent Solid	14.1	1	%		04/13/19		SW846-%Solid
Total Solids @ 104C	14.1	0.1	%	1	04/13/19	EG	SM2540B-11
Ammonia as Nitrogen	4000	508	mg/Kg	1	04/16/19	KDB	E350.1
Nitrite as N	1.19	0.71	mg/kg	10	04/13/19	BS/GD	SW9056A
Nitrate as N	< 3.55	3.55	mg/kg	10	04/13/19	BS/GD	SW9056A
pH - Sludge	7.79	1.00	pH Units	1	04/12/19 22:55	RWR	SW9045
Nitrogen Tot Kjeldahl	67700	1020	mg/Kg	1	04/16/19	KDB	E351.1
Total Nitrogen	67700	0.05	mg/Kg	1	04/16/19	KDB	SM4500NH3/E300.0-97
Phosphorus, Total	6500	89	mg/Kg	25	04/17/19	JR	SM4500PE-11
Mercury Digestion	Completed				04/15/19	I/I	SW7471B
Sludge Ext. for PCB	Completed				04/16/19	P/E	SW3550C
Total Metals Digest	Completed				04/12/19	AG/BF	SW3050B

Polychlorinated Biphenyls

PCB-1016	ND	350	ug/Kg	1	04/17/19	SC	SW8082A
PCB-1221	ND	350	ug/Kg	1	04/17/19	SC	SW8082A
PCB-1232	ND	350	ug/Kg	1	04/17/19	SC	SW8082A
PCB-1242	ND	350	ug/Kg	1	04/17/19	SC	SW8082A

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
PCB-1248	ND	350	ug/Kg	1	04/17/19	SC	SW8082A
PCB-1254	ND	350	ug/Kg	1	04/17/19	SC	SW8082A
PCB-1260	ND	350	ug/Kg	1	04/17/19	SC	SW8082A
PCB-1262	ND	350	ug/Kg	1	04/17/19	SC	SW8082A
PCB-1268	ND	350	ug/Kg	1	04/17/19	SC	SW8082A
<u>QA/QC Surrogates</u>							
% DCBP	78		%	1	04/17/19	SC	30 - 150 %
% DCBP (Confirmation)	74		%	1	04/17/19	SC	30 - 150 %
% TCMX	58		%	1	04/17/19	SC	30 - 150 %
% TCMX (Confirmation)	61		%	1	04/17/19	SC	30 - 150 %

Massachusetts does not offer certification for Soil/Solid matrices.

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level

QA/QC Surrogates: Surrogates are compounds (preceded with a %) added by the lab to determine analysis efficiency. Surrogate results(%) listed in the report are not "detected" compounds.

Comments:

The regulatory hold time for pH is immediately. This pH was performed in the laboratory and may be considered outside of hold-time.

All soils, solids and sludges are reported on a dry weight basis unless otherwise noted in the sample comments.

If you are the client above and have any questions concerning this testing, please do not hesitate to contact Phoenix Client Services at ext.200. The contents of this report cannot be discussed with anyone other than the client listed above without their written consent.



Phyllis Shiller, Laboratory Director

April 18, 2019

Reviewed and Released by: Bobbi Aloisa, Vice President



Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

April 18, 2019

FOR: Attn: Mr. Keith Gammell
Barnhardt Mfg. Co.
247 Main Rd
P.O. Box 3
Colrain, MA 01340

Sample Information

Matrix: WASTE WATER
Location Code: BARNHARD
Rush Request: Standard
P.O.#: G10513

Custody Information

Collected by:
Received by: CP
Analyzed by: see "By" below

Date

04/12/19
04/12/19

Time

7:00
17:02

Laboratory Data

SDG ID: GCC94588
Phoenix ID: CC94589

Project ID: 2ND QUARTERLY SLUDGE & SULFIDE
Client ID: EFFLUENT

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Sulfide	1.52	0.50	mg/L	10	04/17/19	GD	SM4500S-D-11

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level

Comments:

If you are the client above and have any questions concerning this testing, please do not hesitate to contact Phoenix Client Services at ext.200.
The contents of this report cannot be discussed with anyone other than the client listed above without their written consent.

Phyllis Shiller, Laboratory Director

April 18, 2019

Reviewed and Released by: Bobbi Aloisa, Vice President



Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

QA/QC Report

April 18, 2019

QA/QC Data

SDG I.D.: GCC94588

Parameter	Blank	Blk RL	Sample Result	Dup Result	Dup RPD	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits
QA/QC Batch 474789 (mg/kg), QC Sample No: CC94446 (CC94588)													
Mercury - Soil	BRL	0.03	0.03	<0.03	NC	91.9	98.0	6.4	88.5	96.3	8.4	75 - 125	20
Comment:													
Additional Mercury criteria: LCS acceptance range for waters is 80-120% and for soils is 75-125%													
QA/QC Batch 474661 (mg/kg), QC Sample No: CC94447 (CC94588)													
<u>ICP Metals - Soil</u>													
Boron	BRL	1.3	<1.7	<1.7	NC	100			95.3			75 - 125	30
Cadmium	BRL	0.33	<0.43	<0.42	NC	102			104			75 - 125	30
Chromium	BRL	0.33	10.5	11.6	10.0	110			107			75 - 125	30
Copper	BRL	0.66	12.9	13.4	3.80	106			108			75 - 125	30
Lead	BRL	0.33	52.6	36.4	36.4	109			98.4			75 - 125	30
Molybdenum	BRL	0.33	<0.43	<0.42	NC	111			105			75 - 125	30
Nickel	BRL	0.33	7.87	8.24	4.60	108			104			75 - 125	30
Potassium	BRL	4.9	513	586	13.3	112			>130			75 - 125	30
Zinc	BRL	0.66	45.4	46.5	2.40	103			102			75 - 125	30

m = This parameter is outside laboratory MS/MSD specified recovery limits.

r = This parameter is outside laboratory RPD specified recovery limits.



Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O. Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

QA/QC Report

April 18, 2019

QA/QC Data

SDG I.D.: GCC94588

Parameter	Blank	Blk RL	Sample Result	Dup Result	Dup RPD	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits
QA/QC Batch 474720 (%), QC Sample No: CC93797 (CC94588)													
Total Solids	BRL	0.1	15.4	15.7	1.90	100						75 - 125	30
Comment:													
Additional: LCS acceptance range is 85-115% MS acceptance range 75-125%.													
QA/QC Batch 474697 (PH), QC Sample No: CC94397 (CC94588)													
pH at 25C - Soil			8.09	7.95	1.70	99.4						85 - 115	20
Comment:													
Additional: LCS acceptance range is 85-115% MS acceptance range 75-125%.													
QA/QC Batch 475098 (mg/Kg), QC Sample No: CC94472 (CC94588)													
Phosphorus, Total as P	BRL	0.50	1070	1150	7.20	107			94.7			75 - 125	30
Comment:													
Additional: LCS acceptance range is 85-115% MS acceptance range 75-125%.													
QA/QC Batch 475173 (mg/L), QC Sample No: CC95130 (CC94589)													
Sulfide	BRL	0.05	<0.05	<0.05	NC	99.2			99.2			90 - 110	20
QA/QC Batch 475029 (mg/L), QC Sample No: CC94297 (CC94588)													
Nitrate as Nitrogen	BRL	0.05	0.10	0.11	NC	98.6			104			90 - 110	20
Nitrite as Nitrogen	BRL	0.004	<0.004	<0.004	NC	102			102			90 - 110	20
QA/QC Batch 474831 (mg/Kg), QC Sample No: CC94588 17.5X (CC94588)													
Ammonia as Nitrogen	BRL	3.51	4000	3980	0.50	123			99.8			75 - 125	30
Nitrogen Tot Kjeldahl	BRL	3.51	67700	60480	11.3	113			86.0			75 - 125	30
Comment:													
TKN is reported as Organic Nitrogen in the Blank, LCS, DUP and MS.													



Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O. Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

QA/QC Report

April 18, 2019


QA/QC Data

SDG I.D.: GCC94588

Parameter	Blank	Blk RL	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits
QA/QC Batch 475058 (ug/Kg), QC Sample No: CC92992 (CC94588)										
<u>Polychlorinated Biphenyls - Sludge</u>										
PCB-1016	ND	13	58	48	18.9				40 - 140	30
PCB-1221	ND	13							40 - 140	30
PCB-1232	ND	13							40 - 140	30
PCB-1242	ND	13							40 - 140	30
PCB-1248	ND	13							40 - 140	30
PCB-1254	ND	13							40 - 140	30
PCB-1260	ND	13	74	61	19.3				40 - 140	30
PCB-1262	ND	13							40 - 140	30
PCB-1268	ND	13							40 - 140	30
% DCBP (Surrogate Rec)	88	%	91	71	24.7				30 - 150	30
% DCBP (Surrogate Rec) (Confirm)	92	%	93	72	25.5				30 - 150	30
% TCMX (Surrogate Rec)	60	%	56	48	15.4				30 - 150	30
% TCMX (Surrogate Rec) (Confirm)	60	%	57	49	15.1				30 - 150	30

If there are any questions regarding this data, please call Phoenix Client Services at extension 200.

RPD - Relative Percent Difference
LCS - Laboratory Control Sample
LCSD - Laboratory Control Sample Duplicate
MS - Matrix Spike
MS Dup - Matrix Spike Duplicate
NC - No Criteria
Intf - Interference


Phyllis Shiller, Laboratory Director
April 18, 2019

Thursday, April 18, 2019

Criteria: None

State: MA

Sample Criteria Exceedances Report

GCC94588 - BARNHARD

SampNo	Acode	Phoenix Analyte	Criteria	Result	RL	Criteria	RL Criteria	Analysis Units
--------	-------	-----------------	----------	--------	----	----------	----------------	-------------------

*** No Data to Display ***

Phoenix Laboratories does not assume responsibility for the data contained in this exceedance report. It is provided as an additional tool to identify requested criteria exceedences. All efforts are made to ensure the accuracy of the data (obtained from appropriate agencies). A lack of exceedence information does not necessarily suggest conformance to the criteria. It is ultimately the site professional's responsibility to determine appropriate compliance.



Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823



Analysis Comments

April 18, 2019

SDG I.D.: GCC94588

The following analysis comments are made regarding exceptions to criteria not already noted in the Analysis Report or QA/QC Report: None.



CHAIN OF CUSTODY RECORD

587 East Middle Turnpike, P.O. Box 370, Manchester, CT 06040
Email: info@phoenixlabs.com Fax (860) 645-0823
Client Services (860) 645-8726

Coolant: Yes ☒ No ☐
IPK ☒ ICE ☐ No ☐

Temp 62 Pg of
Data Delivery/Contact Options:

Fax: ☐
Phone: ☒ 413-624-3471 x3722
Email: ☒ Keith.gunnell@barnhardt.net

Customer: Barnhardt

Address: PO Box 3 247 Main Rd

Calran, Mass 01340

Project: 2nd Quarterly Sludge & Surface Project P.O. 610513

Report to: Keith Gunnell

Invoice to: Barnhardt

QUOTE #

This section MUST be completed with Bottle Quantities.

Client Sample - Information - Identification

Sampler's Signature IC Date: 4-12-19

Matrix Code: DW=Drinking Water GW=Ground Water SW=Surface Water WW=Waste Water
RW=Raw Water SE=Sediment SL=Sludge S=Soil SD=Solid W=Wipe OIL=Oil
B=Bulk L=Liquid X= (Other)

PHOENIX USE ONLY
SAMPLE # 31614 Customer Sample Identification Sludge Grab Date Sampled 4-12-19 Time Sampled 615

Effluent WW 4-12-19 7AM

Analysis Request

Analysis Request 31614

GL Amber 8 oz WH3PO4	<input checked="" type="checkbox"/>
GL VOA Vial (methanol) H2O	<input checked="" type="checkbox"/>
GL Soil container (oz)	<input checked="" type="checkbox"/>
GL Amber 100ml Vial (As is) HCl	<input checked="" type="checkbox"/>
PL H2SO4 (750ml) [500ml] [1000ml]	<input checked="" type="checkbox"/>
PL HNO3 250ml	<input checked="" type="checkbox"/>
Beckman Bottle white	<input checked="" type="checkbox"/>
Beckman Bottle as is	<input checked="" type="checkbox"/>

GL Amber 8 oz WH3PO4	<input checked="" type="checkbox"/>
GL VOA Vial (methanol) H2O	<input checked="" type="checkbox"/>
GL Soil container (oz)	<input checked="" type="checkbox"/>
GL Amber 100ml Vial (As is) HCl	<input checked="" type="checkbox"/>
PL H2SO4 (750ml) [500ml] [1000ml]	<input checked="" type="checkbox"/>
PL HNO3 250ml	<input checked="" type="checkbox"/>
Beckman Bottle white	<input checked="" type="checkbox"/>
Beckman Bottle as is	<input checked="" type="checkbox"/>

Relinquished by: <u>[Signature]</u>	Accepted by: <u>[Signature]</u>	Date: <u>4-12-19</u>	Time: <u>0945</u>	RI <input type="checkbox"/> Direct Exposure (Residential) <input type="checkbox"/> GW <input type="checkbox"/> Other <input type="checkbox"/>	CI <input type="checkbox"/> RCP Cert <input type="checkbox"/> GW Protection <input type="checkbox"/> SW Protection <input type="checkbox"/> GA Mobility <input type="checkbox"/> GB Mobility <input type="checkbox"/> Residential DEC <input type="checkbox"/> I/C DEC <input type="checkbox"/> Other <input type="checkbox"/>	MA <input type="checkbox"/> MCP Certification <input type="checkbox"/> GW-1 <input type="checkbox"/> GW-2 <input type="checkbox"/> GW-3 <input type="checkbox"/> S-1 GW-1 <input type="checkbox"/> S-1 GW-2 <input type="checkbox"/> S-1 GW-3 <input type="checkbox"/> S-2 GW-1 <input type="checkbox"/> S-2 GW-2 <input type="checkbox"/> S-2 GW-3 <input type="checkbox"/> S-3 GW-1 <input type="checkbox"/> S-3 GW-2 <input type="checkbox"/> S-3 GW-3 <input type="checkbox"/> MWRA eSMART <input type="checkbox"/> Other <input type="checkbox"/>	Data Format <input type="checkbox"/> Excel <input checked="" type="checkbox"/> PDF <input type="checkbox"/> GIS/Key <input type="checkbox"/> EQUIS <input type="checkbox"/> Other <input type="checkbox"/>
Comments, Special Requirements or Regulations: <u>Per Round 1702</u>							
* SURCHARGE APPLIES							